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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/531,460

04/27/2006

Takaaki Chosokabe

041094-5027

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EXAMINER

BARCENA, CARLOS

ART UNIT

PAPER NUMBER

4181

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/531,460	<b>Applicant(s)</b> CHOSOKABE ET AL.	
	<b>Examiner</b> Carlos Barcena	<b>Art Unit</b> 4181	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 November 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 April 2005 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>15 April 2005; 08 November 2005</u> .                         | 6) <input type="checkbox"/> Other: _____                          |



### DETAILED ACTION

Claims 1 – 12 are pending for application 10/531460 (Attorney Docket No. 041094-5027) and presented for examination based on the merit.

#### *Specification*

1. The disclosure is objected to because of the following informalities: (i) "...a minimum of preferably not higher than 300 °C..." (page 1) implies a temperature range of less than 300 °C and "higher" should be replaced with "lower"; and (ii) "...in the temperature range of not higher than 300 °C, preferably from approximately 100 to 1,000 °C..." is contradictory (page 3).

Appropriate correction is required.

#### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 1, 3-5, and 7-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Iwaya *et al.* (US 5,568,116).**

Regarding applicant claim 1, 3, 7, and 11-12, Iwaya discloses a ceramic composition for thermistor with the general formula  $(M^1_{1-x}N^1_x)(P^2_{1-y-z}N^2_yAl_z)O_3$ , where  $M^1$ ,  $N^1$ ,  $P^2$ , and  $N^2$  denote multiple elements, specifically:  $M^1 = Y$ ,  $N^1 = Sr$ ,  $P^2 = Fe$ , and  $N^2 = Mn$  (col. 2,

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lines 20-35), which would contain a perovskite type oxide, garnet type oxide, and Sr-Al or Sr-Fe type oxide crystal phases. See MPEP Section 2112 [R3]. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977).

Regarding applicant claim 4 and 8, Iwaya discloses the composition above satisfies the formula found in col. 2, lines 39-43. Specifically, choosing values of  $x = 0.1$ ,  $y = 0.1$ , and  $z = 0.3$  per applicant's range would satisfy the formula and be within the specified ranges taught by Iwaya.

Regarding applicant claim 5, Iwaya discloses using sintering aids composed of Si (col.4, lines 58-62) and adds 1 wt% of SiO<sub>2</sub> powder in example 1(col. 6, lines 34-35).

Regarding applicant claim 9, Iwaya discloses in example 1 using Y<sub>2</sub>O<sub>3</sub>, SrCO<sub>3</sub>, FeO<sub>3</sub>, and Al<sub>2</sub>O<sub>3</sub> (col. 6, lines 23-28). Although not limited to this example, MnO<sub>2</sub> could also be added as N<sup>2</sup> can be one or more of group 7A elements (col. 2, lines 28-31) including manganese. SiO<sub>2</sub> is added (col. 6, line 34).

Regarding applicant claim 10, Iwaya discloses using Sr, Y, Mn, Al, and Fe (see “regarding applicant claim 9” immediately above). Iwaya also teaches the sintering aid can be preferably added to be substantially low in Si in the amount as low as 0.5 wt% (col. 3, lines 51-52).

**4. Claims 1-3, 5-7, 9, and 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Ogata *et al.* (US 6,306,315).**

Regarding applicant claim 1, Ogata discloses a thermistor portion of a thermistor device made of a mixed sintered body perovskite-type compound of formula (M1M2)O<sub>3</sub> composed of various compounds including Y, Sr, Mn, Al, and Fe (col. 4, lines 28-35).

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Said thermistor portion (sintered body) is composed of a perovskite-type compound (col. 4, line 30), a garnet-type oxide (yttrium-aluminum-garnet,  $\text{Y}_3\text{Al}_5\text{O}_{12}$ ) (col. 11, line 49) and Sr-Al or Sr-Fe (col. 4, line 32 and 34). See MPEP Section 2112 [R3]. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977).

Regarding applicant claim 2 and 6, Ogata discloses a thermistor portion of a thermistor device made of a mixed sintered body perovskite-type compound of formula  $(\text{M1M2})\text{O}_3$ , where M1 and M2 are selected from a group of elements, specifically,  $\text{M1} = \text{Y}$  and  $\text{M2} = \text{Fe}$  and/or Al to give  $\text{FeYO}_3$  and/or  $\text{AlYO}_3$  (col. 4, lines 28-35). Furthermore, Ogata also teaches using yttrium-aluminum-garnet (YAG), specifically  $\text{Y}_3\text{Al}_5\text{O}_{12}$  (col. 11, lines 49-50).

Regarding applicant claim 3 and 7, Ogata discloses perovskite type oxide selected from elements for  $\text{M1} = \text{Sr}$ ,  $\text{M2} = \text{Mn}$  and/or Fe and  $\text{M2} = \text{Al}$  and/or Mn (col. 4, 30-34).

Regarding applicant claim 5, Ogata discloses using mullite ( $3\text{Al}_2\text{O}_3 \cdot 2\text{SiO}_2$ ) and  $\text{Y}_2\text{SiO}_5$  (col. 11, lines 50-51). Furthermore, an organic compound can also be used containing Y, Al, and Si (col.11, lines 64-67).

Regarding applicant claim 9, Ogata discloses the aforementioned sintered body for thermistor elements including Sr, Y, Mn, Al, and Fe (col.4, line 31-34). A sintering aid consisting of  $\text{SiO}_2$  is added to improve sintering characteristics (col.4, lines 64-67).

Regarding applicant claim 11 and 12, Ogata discloses the aforementioned sintered body for thermistor elements including Sr, Y, Mn, Al, Fe (col.4, line 31-34) and O (col.4, line 12).

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***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent 4,812,426 to Takagi *et al.* discloses a perovskite type lead-containing oxide powder and to a sintered body and element prepared from said lead-containing oxide powder. Takagi uses the term lead-containing oxide powder to mean oxide oxides containing lead and one or more of the metals other than lead including Sr, Y, Mn, Al, and Fe.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Barcena whose telephone number is (571) 270-5780. The examiner can normally be reached on Monday through Thursday 8AM - 5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571) 272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. B./

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/Vickie Kim/

Supervisory Patent Examiner, Art Unit 4181